# MARYLAND PARK SERVICE
# STANDARDS FOR HISTORIC WEAPONS USE
Revised, May 2015

**Table of Contents**

## I. Purpose

These **standards** apply to the use of historic weapons, both firearms and edged weapons, for interpretive demonstration purposes by individuals and reactivated military units on lands administered by the Maryland Park Service (MPS). These Standards further elaborate and articulate the MPS Policy 11-51, "Use of Historic Weapons and Agency-Owned Artillery Pieces." Live fire demonstrations and competitions that use historic weapons on any shooting range on MPS lands are also governed by these standards.

## II. Definitions

A. **Historic Weapons:** historic firearms, artillery and edged weapons brought onto MPS lands for demonstration purposes. There are three types of historic weapons:

1. **Flintlock/Slow-Match and Lintstock Era Weapons:** firearms that utilized priming powder and flints as the primary ignition system for small-arms, and utilized slow-match and lintstock as the primary ignition system for artillery. This definition also covers all edged weapons and other weapons used during the period in which these types of weapons were used.

2. **Percussion/Friction Primer Era Weapons:** firearms that utilized percussion caps as the primary ignition system for small-arms, and utilized friction primers as the primary ignition system for artillery. This definition also covers all edged weapons and other weapons used during the period in which these types of weapons were used.

3. **Other Era Weapons:** Either firearms that utilize an ignition system or edge-weapons that are different from the above categories. These include (but are not limited to) match-locks and post-Civil War weapon systems being used for historic demonstration purposes. Please consult with the historic weapons safety instructor if you anticipate other era weapons to appear on MPS lands.

B. **Demonstration:** means employing the use of one or more historic weapons on MPS lands, for the purpose of public education, under the direction of a Certified Historic Weapons Safety Officer. Five types of weapons demonstrations are permitted:

1. **Individual Demonstrations** are demonstrations during which one demonstrator employs the use of a historic weapon. This also applies to a group of demonstrators employing the use of a historic weapon that requires more than one person to fire (such as artillery).

2. **Group Demonstrations** are those in which two or more demonstrators employ the use of historic weapons, but without an opposing line.

3. **Tactical Demonstrations** are those where demonstrators employ the use of historic weapons under simulated battle conditions, with opposing lines or "sides."

4. **Non-Firing Demonstrations** are those demonstrations that employ the use of historic weapons, but the firearms are not loaded and fired.

5. **Live-Firing Demonstrations** are those demonstrations that employ the firing of projectiles out of either MPS-owned historic weapons, and/or non-agency-owned historic weapons on MPS lands. Individual and group demonstrations can be live-firing demonstrations, but these demonstrations should be governed by the additional safety precautions required for live-firing.

C. **Certified Historic Weapons Safety Officer:** A MPS employee or volunteer who has successfully completed the most recent MPS Historic Weapons Safety Training Course, and holds a certificate signed by the Superintendent. The MPS Safety Officer has final authority over any question or dispute that may arise concerning these standards. Beginning an April 2011, MPS Safety Officers receive specialized training in either flintlock or percussion era weapons. The MPS safety officer is only permitted to oversee demonstrations in the period in which he/she receives training. The only exception is that a MPS Safety Officer can assist with Tactical Demonstrations (see page 16 for details). In the even that there is more than one safety officer onsite, one safety officer will be clearly designated the **lead safety officer** prior to any demonstration.

D. **Certified Historic Weapons Safety Instructor:** A MPS employee who has been trained by the National Park Service, and whose training is renewed once every four years. MPS Safety Officers should consult with MPS Safety Instructor for advice regarding the use of unusual and unique weapons, or historic weapons that date from periods preceding and immediately following the flintlock and percussion period. The Safety Instructor has the final authority regarding the interpretation and implementation of these standards. MPS Safety Instructors may act as Safety Officers for historic weapons from any time period.

E. **Unit Safety Officer:** A member of the military unit performing a demonstration. Every military unit performing a demonstration is required to have a Unit Safety Officer.

F. **The Public:** Park visitors who view (but do not participate in) historic weapons programs and firing demonstrations.

III. Universal Standards for **All** Historic Weapons Demonstrations:

A. **Period appropriate:** All historic weapons used in any demonstration must be appropriate to the time period being interpreted. MPS Historic Weapons Safety Officers are only permitted to oversee demonstrations involving artillery that correlates with the track taken at the most recent MPS Historic Weapons Safety Training. Historic Weapons Safety Instructors may oversee any historic weapons' demonstration.

B. **Weapons and drill inspections:** A MPS Safety Officer must inspect all weapons brought onto MPS lands, whether small arms, artillery, or edged weapons. In addition, the Safety Officer will observe the drill, manual of arms, or loading sequence to be used in weapons demonstrations. This assessment will ensure all weapons and accouterments:

- Are clean and well-maintained;
- Function correctly and have no missing parts;

And that the demonstrator(s) is (are):

- Able to execute the required drill, manual of arms, or loading sequence without error;
- Competent in performing the appropriate misfire procedures without mistake;
- Familiar with the nomenclature of the weapons they use;
- Instructed in a proper manner to present demonstrations with maximum safety to themselves and to the visitors.

Only upon inspection and approval will any demonstrator(s) be allowed to participate in, or will a weapon be used in a demonstration. The Safety Officer will have definitive authority to fail any weapon or demonstrator they feel is unsafe.

C. Participation in demonstrations will be limited to **units** and **individuals invited** by the MPS Safety Officer. No "walk-ons" will be permitted.

D. **Safe conduct:** The MPS Safety Officer and the Unit Safety Officer have the power to order correction of any situation that he/she determines is a violation of safety. This power extends to stopping an unsafe demonstration and up to and including ejection of violators from the event and future events (future ejections will require incident reports to be prepared).

E. **Weapons discharge:** Under NO circumstances will a weapon be discharged anywhere other than a duly constituted Individual Demonstration Area, Group Demonstration Area, or a Tactical Demonstration Area. Weapons will not be discharged in camp or anywhere off the field of demonstration.

F. **Safety message:** Before firing a cannon or small arm, a safety message must be delivered to the public. This message must warn them of the loud noise, recommend caution to individuals with hearing aids, and advise control of children and/or pets.

G. **Weapon control:** At NO time will a demonstrator surrender control of a weapon to a member of the public. A visitor may be permitted to feel the heft of the weapon while the demonstrator holds the sling (this does not apply to edged weapons—see below).

H. **Age minimum:** Individuals must be at least 16 years of age in order to carry and fire small arms, or to perform as part of an artillery crew. This age requirement also applies to carrying and possessing ammunition, primers, or other explosive materials associated with historic weapons.

I. **Clothing:** For the protection from burns, all demonstrators firing historic weapons are required to wear natural fiber garments. These garments must be appropriate to the program, portrayal, and historic period being interpreted.

J. **Edged weapons:** Knives, hatchets, tomahawks, swords and bayonets must be carried in a properly made sheath that completely and safely covers sharp edges. Edged weapons may be unsheathed for public view as long as the demonstrator maintains control of the weapon and it is never pointed at or towards the public. Hatchets, tomahawks, and knives may also be unsheathed when being used as a camp tool. Military units may fix bayonets in order to stack their weapons, but the stacks must be guarded in order to ensure safety of the public. Demonstrations of bayonet drill, such as the McClellan Bayonet Drill, are permissible provided they are performed in a safe area approved by a MPS Safety Officer.

K. **Powder and Ammunition:**

1. **Live and Blank Ammunition:** At NO time will a demonstrator carry **live or ball ammunition** during an event designed for blank firing. Live fire and blank fire will be conducted separately, with the demonstrator carrying **only the type ammunition appropriate** to the event.

2. **Bulk Powder** may not be brought onto MPS lands by volunteers or reenactors participating in weapons demonstrations. All powder must be in cartridges appropriate to the type of weapon being demonstrated, which were prepared off park property. Exceptions are allowed for riflemen, as detailed in #5 below.

3. **Bulk Ammunition** will be brought onto a MPS site in secure, non-sparking boxes. After issuance to troops, ammunition will be kept in well-constructed and maintained **cartridge boxes**, with secure leather or cloth webbing straps, and which are kept clean of loose powder granules. When left in camp, cartridge boxes will be under guard. **Neither loaded nor empty cartridges will be given to the public**. Ammunition will be kept away from open flame.

4. **Wadding** with cartridge paper and the use of **ramrods** are permitted for Individual and Group Demonstrations when there are no people downrange. Wadding with paper cartridges and ramrod use are not permitted in Tactical Demonstrations.

5. **Powder Horns** may be used to carry black powder when appropriate to the weapon and time period being interpreted. Powder horns will be well constructed and maintained and must not leak powder. As with cartridge boxes, powder horns carrying black powder must be under guard when left in camp and should not be given to the public. At no time should a powder horn contain more powder than is necessary for the demonstration being performed. The MPS Safety Officer has discretion to determine if an unreasonable amount of powder is being carried in a horn.

L. **Clean-up:** Following any firing demonstration, individuals or units will clean-up and dispose of **empty cartridges**, for both small arms and artillery.

M. **Horses, Mules and Asses:** Upon arrival at a MPS site all **horses, mules and asses from outside Maryland** will have health documentation complying with the Annotated Code of Maryland, Title 15, subtitle 11.01.05, "Horses, Mules, and Asses." If, for any reason, the MPS safety officer is uncomfortable with way an animal is behaving, they have the sole authority to have that animal removed from the interpretive program.

IV. Rules for **Individual Small Arms Demonstrations:** *These rules apply to blank-firing demonstrations only.* For live-firing individual demonstrations, see page 20.

A. All individual small arms demonstrations will have **prior approval** of the MPS Safety Officer and must conform to the appended **Small Arms Demonstration Checklist**.

B. A minimum of **two volunteers** will be present for an individual small arms demonstration, one to operate the weapon, the other to provide crowd control and to watch for safety. Either may address the public. Each will be at least 16 years old. Well-trained MPS employees may singly perform individual small arms demonstrations.

C. The loading and firing of any small arm will follow the correct **Manual of Arms** for the type weapon being demonstrated. Rifles for which there is no prescribed manual will nevertheless be operated in the safest manner possible.

D. Individual small arms demonstrations will be held in an area that conforms to the appended **Range for Small Arms Blank Firing**.

E. **No weapon** will be loaded and/or primed prior to the beginning of the demonstration or outside the demonstration area.

F. **Blank charges** for small arms will not exceed the maximum loads in the appended **Table of Maximum Loads** for the particular weapon being demonstrated.

G. Small arms will be loaded from **pre-wrapped paper cartridges** prepared off-site prior to the demonstration and according to correct period procedures. Aluminum foil, coin wrappers, metal staples, and other modern expedients will not be used.

1. **Flintlock Rifles** may be loaded with powder from **horns**, however, the powder will first be poured into a **powder measure** conforming to the **Table of Maximum Loads**, then poured into the muzzle. Riflemen may prime directly from a **priming horn**, provided the horn contains fine grade (FFFFg) powder. Riflemen will carry loose powder in well-maintained horns that are kept well stoppered.

2. Repeating shoulder arms using properly fixed ammunition are exempt from this paragraph.

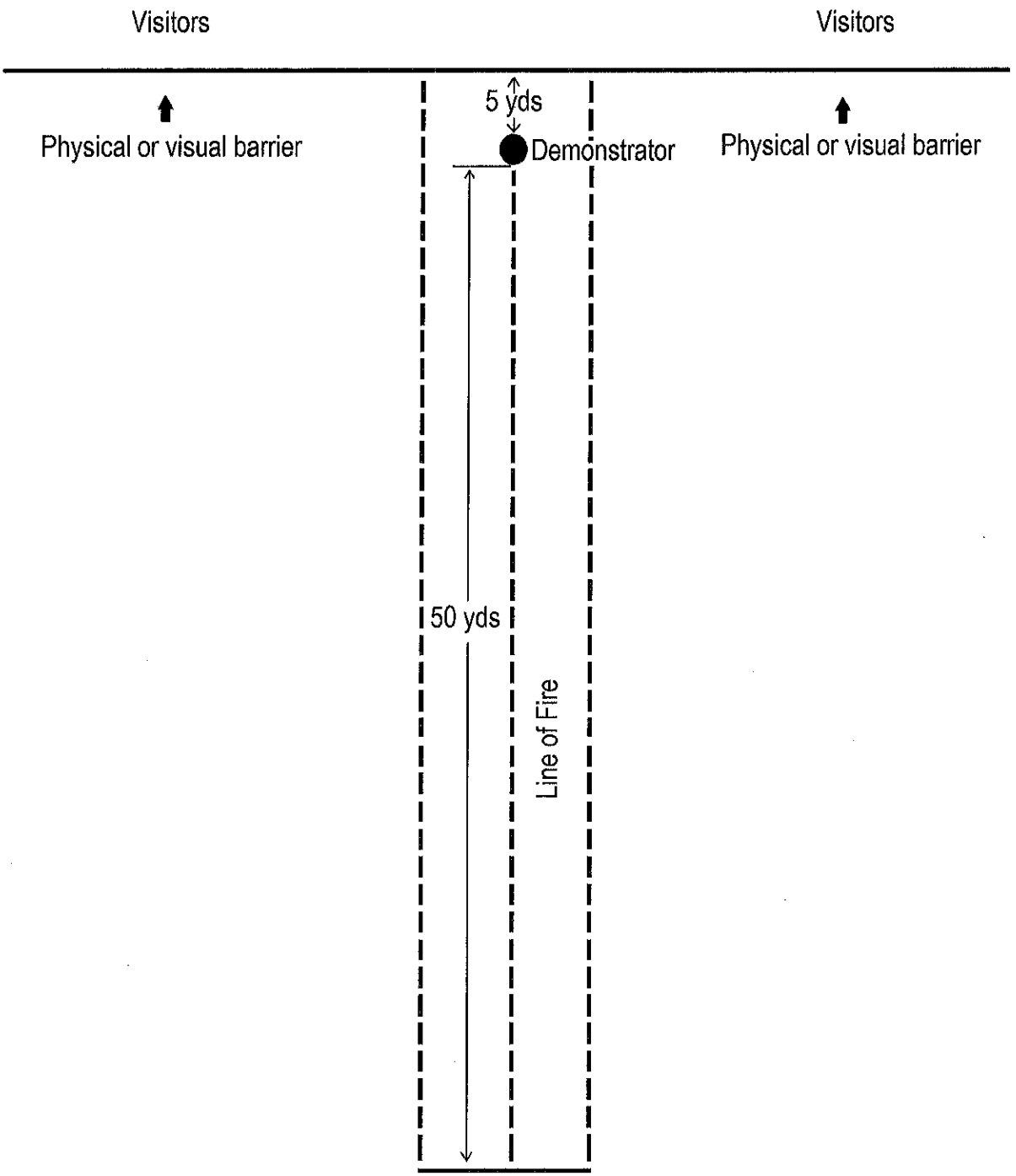
H. Demonstrators will carry cartridges in an authentic **cartridge box** comprised of leather and wood block or leather with tin inserts as appropriate for the time period being interpreted. The cartridge box must be worn well around on the right hip, away from the gunlock. The flap will be kept down at all times except when a cartridge is drawn. For flintlock era demonstrations, **belly boxes** are permitted, but the demonstrator will exercise extreme caution closing the flap because of the box's proximity to the gunlock at the time of firing.

I. All flintlock arms will have **hammer stalls** (frizzen covers) **and flashguards**. The hammer stall will be utilized while the weapon is loaded or being loaded. The hammer stall will be removed only in preparation for discharging the weapon.

J. In the event of a **Misfire**, small arms must be cleared according to the appended **Small Arms Misfire Drill.** Attempting to clear a small arm by simply dumping the powder out of the barrel onto the ground is *not* acceptable.

K. The **Unit Safety Officer** will be responsible for the safe conduct of any individual small arms demonstration undertaken by his unit.

# RANGE FOR SMALL ARMS BLANK FIRING



V. Rules for **Individual Artillery Demonstrations.** *These rules apply to blank-firing demonstrations only.* For live-firing individual demonstrations, see page 20.

A. Only **full-scale** cannons will be fired.

B. Cannons are extremely dangerous to load and fire because of the possibility of premature discharges during the ramming procedure. Cannons will only be demonstrated by employees and/or volunteers **who are under the direct supervision of a MPS Safety Officer.**

C. The prime **rule** in the demonstration of artillery is: **An interval of three minutes will elapse from the time of one discharge and the loading of the subsequent round.** This rule applies not only to individual artillery blank round demonstrations, but also to **live fire** demonstrations and to the use of cannons in **group and tactical demonstrations.** Double worming and double sponging as well as are required during this three-minute interval.

D. **During artillery demonstrations,** the following **rules** will be observed:

1. All individual artillery demonstrations will have **prior approval** of the MPS Safety Officer and must conform to the appended **Artillery Demonstration Checklist.** The MPS Safety Officer will have final authority.

2. Artillery **drill** will conform to the appended **Artillery Demonstration Checklist.** The MPS Safety Officer will have final authority.

3. Cannon demonstrations will be held in an area that conforms to the appended **Range for Blank Cannon Firing.**

4. **Ammunition** will be prepared off MPS land prior to the date of the demonstration, or, if on MPS property, in a black powder laboratory approved by and under the supervision of the MPS Safety Officer. **Cartridges** will be made of at least three layers of heavy-duty aluminum foil, fashioned around a former of a width conforming to the caliber of the gun to be demonstrated. **Powder charges** will not exceed the specifications in the appended **Table of Maximum Loads.** Cartridges will have peat moss or some other type of non-volatile material in order to assure the cartridge is at least one and a half times longer than the caliber of the gun. This will prevent the cartridge from tumbling during loading.

5. In the event of a **Misfire,** cannons must be cleared according to the appended **Artillery Misfire Drill.**

E. No cannon will be loaded and fired with fewer than **five Gunners or Cannoneers and one Gun Commander**. Six or more cannoneers are desirable. Demonstrations of cannon drill by reduced numbers are permitted, provided the gun is not actually loaded and fired with fewer than five gunners or cannoneers and one gun commander. The **required positions** are described below.

1. For Artillery using linstock and slow match:

   a. **Gun Commander**: This position has overall command of the gun and the crew. He gives all commands for service of the gun and assures that the Gunners execute their duties correctly and safely. The Gun Commander never assumes any of the duties of the Gunners.

   b. **Position #1**: This Gunner maintains the linstock and slowmatch. He touches off the priming charge at the command of the Gun Commander, while remaining outside the left wheel. Gunner #1 is also responsible for ensuring that the burning slowmatch is kept well away from Gunner #5 while the cartridge is being carried to #4. In the event of a misfire, #1 returns to a position outside the wheel and in line with the cannon trail #1 remains in this position until the Gun Commander gives the "Fire" command.

   c. **Position #2**: This Gunner tends the vent using a leather thumbstall to prevent air escaping through the vent during all sponging and ramming procedures. When the cartridge is seated, this Gunner uses a brass vent wire to pick open the cartridge through the vent and primes the piece. In the event of a misfire, this position hands the vent wire to #4 over the top of the right wheel. When #4 is finished, he returns the wire to #2 over the right wheel. #2 then hands a priming tube to #4 and returns to the "Ready" position.

   d. **Position #3**: This Gunner sponges the piece after each discharge and rams home each load. He is responsible for the sponge being in proper condition and sees to it that there is always a bucket of water on the ground below the muzzle of the piece. He will wear heavy-duty leather gauntlets to protect the hands during all sponging and ramming procedures. In the event of a premature discharge, this Gunner is at the greatest risk for injury, and therefore must exercise utmost caution at all times. In the event of a misfire, this position remains stationary during the entire repriming and firing procedures.

e. **Position #4**: This Gunner worms the piece after each discharge to extract the remains of the cartridge. He also inserts the new round in the muzzle for Gunner #3 to ram. Like #3, this Gunner wears heavy leather gauntlets to protect the hands at all times while servicing the gun. In the event of a misfire, this position re-primes the piece while standing in front of the axle between the barrel and left wheel.

f. **Position #5**: This Gunner conveys each round, as the Gun Commander calls for it, from the ammunition box to Gunner #4. The round must be carried in a well-made and secure leather or heavy canvas haversack while being transported from the ammunition box to #4. In the absence of Gunner #6, this Gunner assumes those duties in addition to his own.

g. **Position #6**: While this Gunner is not required, it is strongly recommended. This Gunner remains at the ammunition box at all times, issues out the ammunition as the Gun Commander calls for it, and assumes responsibility for security of the ammunition box.

h. **Additional personnel** may be present, at the Gun Commander's discretion, to serve as Matrosses or to further assist in the operation of the gun, so long as the MPS Safety Officer observes no unsafe practices.

i. For guns **without detachable powder boxes** (gallopers), rounds may not be served out of the side boxes; an acceptable powder box posted 10 yards to the rear of the gun will be used.

2. For Artillery Using Friction Primers:

a. **Gunner**: This position has overall command of the gun and the crew. He gives all commands for service of the gun and assures that the Cannoneers execute their duties correctly and safely. The Gunner never assumes any of the duties of the Cannoneers.

b. **Position #1**: This Cannoneer sponges the piece after each discharge and rams home each load. He is responsible for the sponge being in proper condition and sees to it that there is always a bucket of water on the ground below the muzzle of the piece. He will wear heavy-duty leather gauntlets to protect the hands during all sponging and ramming procedures. In the event of a premature discharge, this Cannoneer is at the greatest risk for injury, and therefore must exercise utmost caution at all times. In the event of a misfire, this position remains stationary during the entire repriming and firing procedures.

c. **Position #2**: This Cannoneer worms the piece after each discharge to extract the remains of the cartridge. He also inserts the new round in the muzzle for Cannoneer #1 to ram. Like Cannoneer #1, this position wears heavy leather gauntlets to protect the hands at all times while servicing the gun. In the event of a misfire, this position re-primes the piece while standing in front of the axle between the barrel and left wheel.

d. **Position #3**: This Cannoneer tends the vent using a leather thumbstall to prevent air escaping through the vent during all sponging and ramming procedures. When the cartridge is seated, this Cannoneer uses a brass vent wire to pick open the cartridge through the vent. This Cannoneer also mans the handspike to assist the gunner in pointing the piece. In the event of a misfire, this position hands the vent wire to #2 over the top of the right wheel. When #2 is finished, he returns the wire to #3 over the right wheel.

e. **Position #4**: This Cannoneer maintains the lanyard, the friction primers in a proper leather tube pouch, attaches the primer to the lanyard, primes the piece, and, upon the Gunner's command, fires the gun. In the event of a misfire, this position hands a primer attached to the lanyard to #2 over the top of the left wheel. On #2's prompt, this position extends the lanyard to the ready position.

f. **Position #5**: This Cannoneer conveys each round, as the Gunner calls for it, from the limber chest to #2. The round must be carried in well-made and secure leather or heavy canvas gunner's haversack while being transported from the limber to #2. In the absence of Cannoneers #6 and #7, Cannoneer #5 assumes their duties in addition to his own.

g. **Positions #6 and #7**: While these Cannoneers are not required, they are strongly recommended. These Cannoneers remain at the limber chest at all times, issue out the ammunition as the Gunner calls for it, and assume responsibility for security of the limber chest.

**Note**: It is essential for the safe operation of a muzzle loading cannon that the people serving as Gun Commander and Positions #1-#5 be well trained and experienced working together as a team. "Pick-up" crews assembled on the day of the demonstration are discouraged. In any case, the MPS Safety Officer has final authority to stand down any artillery crew that does not perform the gun drill satisfactorily.

F. All priming and firing will be done by means appropriate for the time period being interpreted.

1. For 18th and early 19th century artillery, priming with **paper** priming tubes is preferred, however, priming by means of a **paper cartridge** or **loose powder** is allowed. Paper cartridges will contain only enough powder for one priming charge, and all the powder is to be poured into and atop the vent. Loose powder priming will be accomplished by means of pouring the powder from a well-stoppered horn or flask into a measure, then into the vent, **never** directly from horn or flask into the vent. Firing will be done by means of a **linstock and slowmatch.**

2. For Civil War period artillery, **priming and firing** will be done by means of properly constructed friction primers, properly used with lanyards. Loose powder **will not** be used.

3. In either case, fuses, open sources of flame, or unauthentic modern priming mechanisms will not be used.

G. Artillery detachments are **required** to have the following **implements** in their kits:

1. Non-sparking ammunition box or limber chest with securely closeable-hinged lid;

2. Vent brush;

3. Non-sparking vent pick or priming wire;

4. Leather thumbstall;

5. Two pairs of heavy leather gauntlets;

6. Leather or heavy canvas gunner's haversack for use as ammunition pass container;

7. Leather or tin primer box on a leather belt, as appropriate to period being interpreted;

8. Rammer staff with a dry sponge;

9. Rammer staff with a damp sponge;

10. One full water bucket;

11. One worm;

12. Priming tubes, or priming powder in well stoppered horn with measure, or friction primers as appropriate for period being interpreted;

13. One Linstock and slowmatch, or one lanyard as appropriate for period being interpreted;

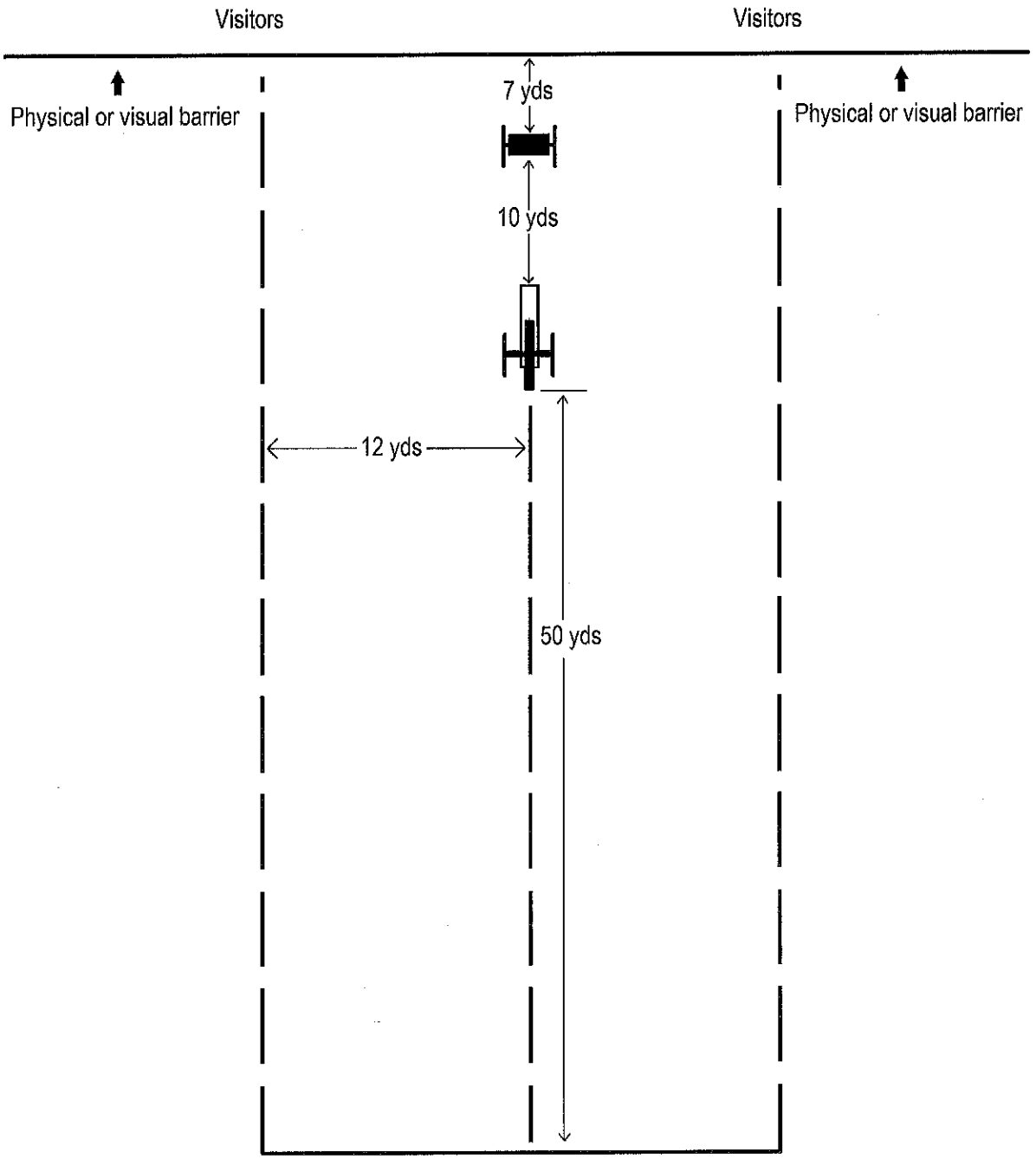
14. One high intensity flashlight;

15. One high-pressure syringe for swamping vent in case of three successive misfires,

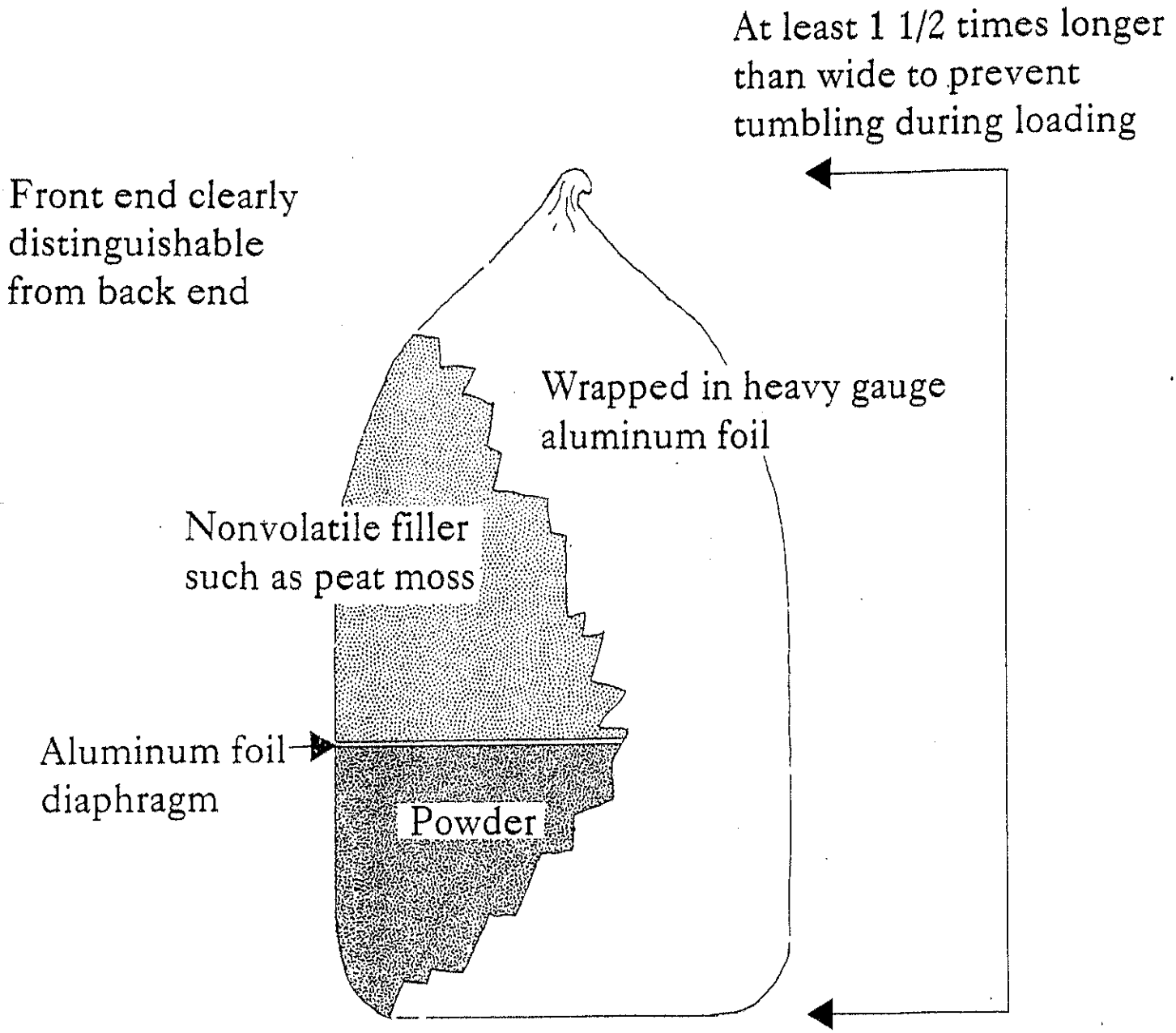
16. One gimlet for friction primer era guns only.

H. **Mortars**, **Cohorns**, and 18th century **Swivel Guns** may be fired in individual demonstrations, live or blank, provided they follow the Artillery Standards as outlined above. Swivel Guns must also adhere to the MPS **Swivel Gun Manual** (available as needed).

RANGE FOR BLANK CANNON FIRING



# What a Blank Artillery Round Should Look Like



VI. Rules for **Group and Tactical Demonstrations.** *These rules apply to blank-firing demonstrations only.* For live-firing group demonstrations, see page 20.

A. Group and Tactical Demonstrations are inherently more dangerous than Individual Demonstrations for several reasons:

1. The number of demonstrators involved;

2. The close proximity of demonstrators to each other;

3. In the case of Tactical Demonstrations, the fact that weapons are being discharged toward other people;

4. The greater difficulty of observing safety violations.

B. Group and Tactical Demonstrations are subject to all applicable standards and rules listed above. To assure maximum safety for demonstrators and visitors, the following **Standards** will also govern **Group and Tactical Demonstrations**:

1. The **MPS Safety Officer** will have final authority over all Group and Tactical Demonstrations. He/she will appoint from among demonstration participants overall field commanders, who will conduct the demonstration as would military commanders. Safety Officers trained in historic weapons from a different era are permitted to assist on the field, but all unit inspections must be completed by a safety officer trained in same era as the demonstration is portraying.

2. In **Group and Tactical Demonstrations**, there must be at least one MPS safety officer with each "side". These safety officers will not simultaneously serve as narrators, nor will they be tasked with any responsibilities other than serving as safety officer during Group and Tactical demonstrations.

3. Individuals must participate in tactical demonstrations as part of a recognized unit. **No "walk-ons" are permitted to participate in tactical demonstrations.**

4. Only portrayals appropriate to the time period being interpreted will be permitted to participate in tactical demonstrations.

5. **American Indian** portrayals will participate in Group and Tactical Demonstrations in organized units, with Unit Safety Officers. They may do so by organizing their own units or by being attached to other organizations, with those organizations' permission.

6. The MPS Safety Officer will approve the scenarios for Group and Tactical Demonstrations in advance. Objective-based Tactical Demonstration scenarios are permitted provided an MPS Safety Officer is familiarized with, approves of, and supervises the demonstration. There must be one MPS safety officer with each "side".

7. All Group and Tactical Demonstrations will be open to the public, and will be governed by these standards.

8. The specific location for a Tactical Demonstration must be selected in advance and in consultation with a MPS Safety Officer. The MPS Safety Officer has authority to either approve or disapprove the area selected. The Tactical Demonstration must be held in an area that meets the following criteria:

   a. The terrain must be appropriate to the time period being portrayed

   b. The area must allow the demonstration to meet the interpretive goals and objectives of the overall historic program

   c. The area must provide for safe conduct of the tactical

9. **Weapons and blank rounds** used in Group and Tactical Demonstrations will conform to the specifications set forth in these standards. **Powder loads** will not exceed the amounts specified in the appended **Table of Maximum Loads**.

10. All flintlock arms will have hammer stalls (frizzen covers) and flashguards. The hammer stall will be utilized while the weapon is loaded or being loaded. The hammer stall will be removed only in preparation for discharging the weapon.

11. In the event of a **Misfire**, small arms must be cleared according to the appended **Small Arms Misfire Drill.** Attempting to clear a small arm by simply dumping the powder out of the barrel onto the ground is *not* acceptable.

12. There will be NO simulation of **hand-to-hand combat**. There will be NO unplanned or impromptu closing of units or of individuals. Any unit or individual in violation of this rule may be ejected from the event and disqualified from participation in future events.

13. **Opposing forces** in Tactical Demonstrations will not discharge weapons at each other unless there is an interval of at least 30 yards between them. In all cases, **muzzles** will be elevated above the opposing force when weapons are fired.

14. Weapons will not be fired in the direction of the public unless there is an interval of at least 100 yards between the firing line and the public.

15. **Ramrods** will not be used at any time when there are people downrange. At the discretion of the MPS Safety Officer, ramrods may be used in small Group demonstrations, provided there are no people downrange, and provided the commanding officer, or a non-shooting Unit Safety Officer, watch that ramrods are returned to their slots under gun barrels after ramming.

16. The **firing of pistols** in Group and Tactical Demonstrations is restricted to mounted troops, and then only with the approval of a field commander who has prior approval of the MPS Safety Officer. Volunteers are advised that the use of percussion revolvers is extremely dangerous. Multiple chamber discharges and loss of priming caps during recoil are two areas of concern. Percussion revolvers will not be loaded or fired by foot troops. Unit safety officers for mounted troops using percussion revolvers will carefully inspect all revolvers prior to and after tactical demonstrations to assure that they are loaded properly and, when the demonstration has ended, that no revolvers remain loaded. Reloading of revolvers during Group and Tactical demonstrations is only permitted by means of changing cylinders. Loaded chambers must be sealed with grease to minimize the possibility of multiple discharges. The MPS Safety Officer retains ultimate authority over this provision.

17. During Group and Tactical Demonstrations, mounted participants will maintain at least a 30-**yard buffer zone** between themselves and opposing troops and the public at all times Special care will be exercised around "casualties."

18. Following any Group or Tactical Demonstration, all firearms will be cleared by **springing rammers** under the supervision of the **Unit Safety Officer**. As an alternative, percussion weapons may be cleared by priming and firing twice – first from the typical "Fire" position, and then with the muzzle pointed towards the ground. Revolvers, breechloaders, and any firearms that do not have ramrods should be physically examined to ensure they are not loaded. Regardless of the weapon being used, the **Unit Safety Officer** has responsibility to confirm that firearms in his unit are clear.

C. Use of **edged weapons** in Group and Tactical Demonstrations will be governed by the following rules:

1. **Swords** carried by officers may be drawn during Group and Tactical Demonstrations and used in accordance with period military drill and practice. **Bayonets and swords** carried by other -ranks will remain in their scabbards during Group and Tactical Demonstrations, except by specific command of the demonstration's designated field commander. The designated field commandeer will give such a command only with the prior approval of the MPS Safety Officer.

2. **Halberds, spontoons, and pikes**, when carried, will remain vertical except by order of the event's field commander, and then only in accordance with period military drill and practice.

3. **Charges** with fixed bayonets, halberds, spontoons and pikes will have the prior approval of the MPS Safety Officer. In NO CASE will bayonet charges be conducted over broken or obstructed ground. In NO CASE will bayonet charges be conducted at a run. In NO CASE will bayonet charges close to within a 30-yard interval of an opposing line or of spectators. In NO CASE will firearms being used in bayonet charges be loaded.

4. **Hatchets, tomahawks, knives and edged weapons** other than swords and pole arms as described above, will remain sheathed during Group and Tactical Demonstrations. They will not be brandished or thrown during Group and Tactical Demonstrations.

5. **Swordplay** is strictly forbidden during Tactical and Group Demonstrations. Mounted troops are allowed to perform sword exercises according to period manuals in Group Demonstrations only, and with prior approval of the MPS Safety Officer.

D. Rules for the use of **Artillery** in Group and Tactical Demonstrations:

1. Artillery crews will follow the **correct manual** for the time period being interpreted observing all the safety procedures outlined above.

2. **Smaller pieces** (three pounders and less) will not be discharged at opposing forces at ranges of less than 50 yards. **Larger pieces** (above three pounders) will not be discharged at opposing forces at ranges of less than 100 yards.
3. A **three-minute interval** will elapse between a discharge and the loading of the subsequent round. **Double sponging and worming** are mandatory during this interval.

4. **Mortars and cohorns** will not be used in Group and Tactical Demonstrations. **Swivel Guns** may be used provided they are in a fixed position, obey the 50-yard range requirement, and are fired in accordance with the MPS Swivel Gun Manual.

VII. **Rules for Non-Firing Demonstrations.** Rules for non-firing demonstrations are the same as those for Individual, Group and Tactical Demonstrations, except no ammunition will be brought onsite and/or utilized during the demonstration. Well-trained employees and volunteers are permitted to conduct individual non-firing demonstrations without the presence of a safety officer.

## VIII. Rules for Live-Firing Demonstrations.

A. **Individual and Group Small Arms Demonstrations.** All rules outlined in the blank-fire demonstrations will be followed in live-fire demonstrations, but also include the following guidelines and procedures.

1. Range

   a. The demonstration must take place at an MPS approved range intended for the use of firing live ammunition.
   b. The range backstop will substitute for the 50-yard down-range buffer used in blank firing.
   c. The safety officer will determine and announce to the demonstrators and to the public when it is safe for demonstrators and public to enter and exit the range.
   d. As with blank-firing demonstrations, a safety message must delivered to the public before firing a small arm. This message must warn them of the loud noise, recommend caution to individuals with hearing aids, and advise control of children and/or pets.

2. Ammunition

   a. The demonstrator is only permitted to fire ammunition appropriate to the weapon.
   b. The demonstrator must follow the Table of Maximum Loads

3. **Misfire Procedures**. Level One misfire procedures for blank and live-fire demonstrations are identical, but demonstrators must follow the Level Two (Live) misfire procedure appropriate to his/her weapon for live-firing demonstrations. A CO2 discharge device must be present for all live fire demonstrations.

B. **Individual and Group Artillery Demonstrations.** All rules outlined in the blank-fire demonstrations will be followed in live-fire demonstrations, but also include the following guidelines and procedures.

1. Range

   a. To date, only the ranges at Fort Frederick State Park and Savage River State Forest are permissible for firing live artillery rounds.
   b. The "Range for Blank Cannon Firing" will also be applied to live artillery demonstrations, except that the range backstop will substitute for the 50-yard buffer used in blank firing demonstrations.
   c. The safety officer will determine and announce to the demonstrators and to the public when it is safe for demonstrators and public to enter and exit the range.

d. As with blank-firing demonstrations, a safety message must be delivered to the public before firing an artillery piece. This message must warn them of the loud noise, recommend caution to individuals with hearing aids, and advise control of children and/or pets.

2. The gun commander or gunner must have experience and/or proper training in aiming and firing artillery. This determination can only be made by a historic weapons safety instructor prior to the demonstration.

3. Ammunition

   a. The demonstrators are only permitted to fire ammunition appropriate to the weapon
   b. Powder charges cannot exceed the Table of Maximum Loads
   c. Explosive rounds are prohibited
   d. All black powder will be wrapped in heavy duty aluminum foil (like the blank rounds). Peat moss extender is prohibited.
   e. A safety officer must carefully inspect the ammunition prior to the demonstration
   f. Powder charges intended for live rounds will be clearly distinguished from charges intended for blank firing

4. **Misfire Procedures**. Level One misfire procedures for blank and live-fire demonstrations are identical, but demonstrators must follow the Level Two (Live) misfire procedure appropriate to his/her weapon for live-firing demonstrations. A CO2 discharge device must be present for all live fire demonstrations.

5. If the projectile misses the range-backstop:

   a. The public will be dismissed immediately
   b. The range will be made "cold"
   c. The leading safety officer will inform the park manager immediately
   d. An organized search for the projectile will commence
   e. The demonstration will not resume until the projectile has been located
   f. An Incident Report will be completed by the lead safety officer

6. **Range Report.** The lead safety officer must complete a range report after the demonstration is completed. An example of a range report can be found on page 42.

# Table of Maximum Loads

| Weapon Type | Caliber | Maximum Load |
|---|---|---|
| **Flintlock Era Small Arms** | | |
| Musket | .69 - .75 | 125 grains ffg |
| Fusile, Fowler, or Trade Gun | .62 - .67 | 90 grains ffg |
| Rifle | Varies | 80 grains ffg |
| Pistols and Horse Pistols | Varies | 50 grains ffg |
| **Percussion Era Small Arms** | | |
| US Rifle, 1841 | .54/.58 | 60 grains ffg |
| US Rifle Musket 1861-64 | .58 | 60 grains ffg |
| British Enfield Rifle | .58 | 60 grains ffg |
| Rifle Musket, Musketoon | .58 | 60 grains ffg |
| US Musket, 1842 | .69 | 75 grains ffg |
| **Metallic Cartridge Small Arms** | | |
| US Springfield Rifle | .50 | 70 grains ffg |
| Sharps Carbine | .50 | 55 grains ffg |
| US Springfield Rifle | .45 | 70 grains ffg |
| US Springfield Carbine | .45 | 55 grains ffg |
| M1873 Colt Revolver | .45 | 28 grains ffg |

| Weapon Type | Caliber | Maximum Load |
|---|---|---|
| **Slow-Match Era Artillery** | | |
| Bronze Guns | 3 pounder | 8 ounces fg |
| | 6 pounder | 12 ounces fg |
| | 9 pounder | 16 ounces fg |
| | 12 pounder | 20 ounces fg |
| Iron Guns | 3 pounder | 6 ounces fg |
| | 4 pounder | 8 ounces fg |
| | 6 pounder | 10 ounces fg |
| | 9 pounder | 12 ounces fg |
| | 12 pounder | 16 ounces fg |
| Howitzers | 4.76 inch | 8 ounces fg |
| | 5.8 inch | 10 ounces fg |
| **Friction-Primer Era Artillery** | | |
| Napoleon | 12 pounder | 20 ounces fg |
| M1841 Howitzer | 12 pounder | 10 ounces fg |
| Mountain Howitzer | 12 pounder | 6 ounces fg |
| Gun – 1841 | 6 pounder | 10 ounces |
| Parrott Rifle | 3 inch | 10 ounces |
| Ordnance Rifle | 3 inch | 10 ounces |

# Small Arms Inspection Checklist

**Before Disassembly**

The weapon is confirmed to be unloaded by springing the rammer

Your overall first impression is favorable

**The Stock:**

No cracks or splits

Butt plate, trigger guard, etc., fit tightly

No burrs on butt plate or trigger guard screw heads that would snag clothing or hands.

If band springs, they work smoothly (not bound by wood)

If pin-fastened, pins all there, tight, wood not splintered

No burns around the top of the lock

Generally, no splinters or rough edges

Two-piece stocks have sections securely joined

**The Lock:**

Lock works smoothly

The hammer or cock fits tightly on the tumbler

All the positions are firm and solid

The half-cock (safety) position works properly

When trigger is pulled, it lets off smoothly without catching on half cock

Trigger pull is proper; not too heavy, not "hair" trigger

If a set trigger, it is adjusted properly and works smoothly

Lock fits properly into the stock and snugly against the barrel

The striking face of a percussion hammer is not battered. It strikes the cap or cone squarely and in the center.

A flintlock's cock screw works smoothly; jaws grip flint securely

There is a proper leather or lead flint cap

The flint is in good condition and set at a proper angle

The feather (frizzen) spring of a flintlock is of the right tension

The hammer (frizzen) is in good condition and not gouged

The pan of a flintlock is clean and in proper relationship to the touchhole of the barrel

**The Barrel:**

Barrel fits the stock properly

Free from visible dents or cracks

On flintlocks, the flint is not striking the barrel

The muzzle is not dented or worn

The cone of percussion pieces is well-seated and not battered

The hole is clear and of an acceptable size. The shoulders are not worn down.

On flintlocks, the vent is clear and of an acceptable size

No signs of heavy corrosion around the vent or cone

The sights are complete and operable

The barrel bands or pins hold the barrel securely

The ramrod is straight, fits the stock properly, and the threads at the lower end are clean and free of burrs

**After Disassembly**

**The Stock:**

There are no shiny spots in the lock recess from rubbing metal

Lock recess is clean and free of splinters; no splitting or cracking

No splitting or cracking around the tang screw hold

The bed for the barrel is clean

Any ramrod spoon or spring works freely; its recess is clean

Any nose cap is securely fastened to the stock

Careful recheck of two-piece stock shows firm joint

**The Lock:**

All internal screws are tight

No internal parts are broken, cracked, or chipped

The nose of the sear and the tumbler notches are sharp and in good condition

No signs of metal rubbing on the inside of the lockplate

No signs of improper repairs or incorrect replacements

On flintlocks, the hammer (frizzen) fits down snugly on top of the pan

All parts are clean and lightly oiled

**The Barrel:**

The breech plug is fully seated and properly aligned

On modern "patent breeches", there is no indication of separation

Check the bore with lights and reflectors. It is clean and in good condition. A patch goes in smoothly and comes out clean.

On pin-fastened pieces, all lugs under the barrel for the pins are complete and in good condition.

On percussion pieces, the bolster is tight in the barrel.

**Additional Comments:**

## Small Arms Demonstration Checklist

The demonstrator approached the demonstration area carrying the weapon in a safe and military fashion

The demonstrator has all the equipment he needs for the demonstration (weapon, cartridge box, cap box, a cartridge)

The demonstrator is not encumbered with superfluous equipment

The demonstrator seems knowledgeable and familiar with the manual he is using

There are sufficient additional people for interpretation and crowd control

The demonstration area is safe for the size of the audience

Visitors are kept at a safe distance. They can see and hear without shoving.

The weapon is always pointed down range

At no time are there any parts of the demonstrator's body placed in a hazardous position in relation to the weapon

In the event of a misfire or other unscheduled event the demonstrator reacts properly

After the demonstration the interpreter maintains military bearing and leaves the area carrying the weapon safely and in a good military fashion

Your overall impression was favorable

**Additional Comments:**

# Artillery Inspection Checklist

Your overall first impression is favorable

**The Tube:**

Tube is clean and free of rust or corrosion

No sign of external damage or strain (dents, cracks, etc.)

Inside of the bore is clean and relatively smooth

No internal signs of damage (bulges, lodgments, pits, etc.)

No sign of corrosion damage at breech of the bore

On iron guns with liners, the liner is secure

The vent is clear and of acceptable size

No signs of cracks or bending around the trunnions

No signs of weakness at the chaplets on bronze tubes

**The Carriage:**

Wheels are tight and free of rot and insect infestation

Body of the carriage is free of rot and insect infestation

No pieces or parts missing, cracked, bent or broken

Wheels move freely

Elevating mechanism works smoothly and properly

None of the ironwork is coming loose

Tube rotates freely on its trunnions

Trunnion caps fit snugly and are properly keyed

Lids of side boxes and limber chests fit snugly

Limber chests and side boxes are clean and free of spilled powder

Wood generally free of serious checking and splintering

Wheel hub does not gouge the end of the axletree

Linch pin is not digging into wheel hub

**Equipment:**

All necessary equipment is present

Sponge is in good condition and fitted to the bore

Rammer head is secure and free of cracks

Small items in good condition (linstock, thumbstall, buckets, etc.)

Prongs of the worm are sharp and not bent

Haversack is clean and free of spilled powder

**Additional Comments:**

# Artillery Demonstration Checklist

**Before:**

The gun has been inspected, inside and out. Bore is clean of foreign material

The carriage if in good condition and all keys secure

The accessory equipment is in good condition—sponge head in good repair, rammer and sponge head secure on staff, etc.

Sponge head fits bore snugly but not too tight

Ammunition boxes, haversacks, etc., are clean and free of spilled powder

Ammunition is properly prepared, with just enough on hand for one demonstration

The equipment is on hand to handle a misfire

There is good visibility by the visitors so there will be no jostling and pushing to see and hear

The interpreter can see all of the visitors and also see downrange

The carriage is free to recoil if necessary so it won't buck or break something

The visitors are properly contained and at a safe distance

The ammunition boxes are at a safe distance from the piece as well as from the visitors

The wind is not too strong for a safe demonstration

Conditions are not so dry as to risk a range fire from the muzzle blast. Equipment is available should one develop.

There is a first aid kit and emergency communications system available

There are no open fires nearby—campfires, etc.

The required number of personnel is present to safely fire the piece

The gun is situated safely in relation to the visitors

**During:**

The crew is following the approved manual with each person where he is supposed to be at any given moment

The sponge is adequately damp but not soaking wet

The man ramming is holding the rammer properly and the vent is being properly tended at the same time

The rammer man is wearing gauntlets, but they are not so stiff and heavy as to cause fumbling or other difficulty

The sponge head does not contact the ground at any time during demonstration to prevent grass, sand, etc., from sticking to it

If there is a misfire, it is handled safely and properly

**After:**

After firing, the piece is wormed and then washed out and dried

All weapons, explosives, and accessory pieces are accounted for

The weapon is secured and stored properly

The demonstration area is inspected carefully for smoldering residue

Sponge head is thoroughly rinsed out and dried

All remaining explosives are promptly returned to proper storage area

**Additional Comments:**

# Flintlock Small Arms Misfire Drill

Level One:

1. Demonstrator or Interpreter explains to the public what is happening.
2. Hold weapon in firing position for 10 seconds to make sure there is no hang fire.
3. Return to the priming position, half cock the firelock, and **place the hammer stall over the hammer**.
4. If the firelock did not spark, check the priming and the flint. Using a clean, dry rag carried in the cartridge box or pouch, wipe off the hammer and flint. Replace flint or reprime if necessary.
5. If there was a flash in the pan, pick the touchhole and reprime. It is also helpful to wipe any fouling off the hammer and flint.
6. Return to the "Shoulder Firelock" position and continue firing demonstration from the "Make Ready" command.
7. If, after the third attempt, the weapon does not fire, dismiss the visitors. Remove the weapon to a safe area and follow the procedure for a Level 2 misfire.

Level Two:

1. Remove the weapon to a safe area.
2. Flood the barrel with water.
3. Wait five minutes.
4. Dump remaining water from barrel and using a worm withdraw the cartridge.
5. Clean the weapon.

Level Two (LIVE):

1. Keep the muzzle pointed down range at all times.
2. Eject the round using a CO2 discharge device.

If this fails:

a. Flood the barrel with water.
b. Wait five minutes.
c. Dump remaining water from barrel and using a worm withdraw the cartridge.
d. Clean the weapon.

# Percussion Small Arms Misfire Drill

Level One:

1. Demonstrator or Interpreter explains to the public what is happening.
2. Hold weapon in firing position for 10 seconds to make sure there is no hang fire.
3. Return to the priming position and half cock the weapon.
4. Reprime the weapon, picking the touchhole in the cone if necessary.
5. Repeat firing demonstration from "Ready" command.
6. If, after the third attempt, the weapon does not fire, dismiss the visitors. Remove the weapon to a safe area and follow the procedure for a Level 2 misfire.

Level Two:

1. Remove the weapon to a safe area.
2. Flood the barrel with water.
3. Wait five minutes.
4. Dump remaining water from barrel and using a worm withdraw the cartridge.
5. Clean the weapon.

Level Two (LIVE):

1. Keep the muzzle pointed down range.
2. Eject the round using a CO2 discharge device.

If this fails:

a. Remove the cone with a musket tool.
b. Flood both the breech and the barrel with water.
c. Wait five minutes.
d. Use a ball puller and pull out the projectile.
e. Dump remaining water from barrel and using a worm withdraw the cartridge.
f. Clean the weapon.

# Artillery Misfire Drill
## For Cannons Using Linstocks and Slow Match

Level One:

When the "Fire" command is given, the priming tube fails to ignite, or ignites but the gun does not fire. All Gunners hold position and remain at attention. Uneasiness and indecision will quickly transmit itself to an audience. The following procedures must be followed.

1. Wait two to five minutes after the last wisp of smoke is seen at the vent. In the meantime, buy some time with interpretation.

2. After waiting, the Gun Commander commands "Reprime the Piece." #4 steps inside the wheel, back to the muzzle, and positions himself near the axletree.

3. #2 hands the priming wire to #4 while standing outside the right wheel at its highest point. #3 should hold the priming wire in his right hand, palm down with the point towards #2, while #2 should take the wire with his left hand, palm up.

4. Using the priming wire, #4 removes and discards the spent primer and picks the cartridge. While doing this #4 must make sure his fingers and hands are not on top of the ring of the priming wire, and that his fingers do not pass through the ring.

5. With his palm up, #4 hands the priming wire back to #2, who receives the wire with his palm down. #2 hands #4 a priming tube and returns to the "Make Ready" position.

6. #4 inserts the priming tube in the vent and moves outside the wheel to the "Make Ready" position.

7. When #4 is clear he gives the "Make Ready" command. The Gun Commander checks to be sure that both gun and detachment are in order for firing, then gives the "Fire" command, and #1 fires the cannon.

8. If the gun does not fire, the above procedure should be repeated using loose powder (from a cartridge or horn) instead of the priming tube.

9. If the cannon fails to fire after three attempts move to the procedure for Level 2 misfires.

Notes: In the event the gun is being fired using loose powder in place of priming tubes, the procedure is the same. When called for, #2 simply hands the cartridge or horn with measure to #4 who reprimes the cannon. Also, on guns with a wheelbase that is not wide enough to stand in front of the axle, repriming may be done from a position opposite the breech. In this case #4 and #2 must ensure they are standing outside of the wheels.

Level Two:

Three attempts have failed to fire the cannon. Do not reprime. Once again, the Gunners remain in position while the visitors are dismissed. The following procedures must be followed.

1. Several bulbs of water are slowly squeezed into the vent using a "turkey baster". This should be done from a position in front of the axletree to the left of the barrel, however, on smaller guns may be done from a position opposite the breech, but from outside of the wheel.

2. The vent adapter nozzle of the $CO_2$ Fire Extinguisher is inserted in the vent of the cannon barrel. The operator should be wearing the welding gloves

3. Holding the adapter nozzle securely in the vent, the $CO_2$ Fire Extinguisher is SLOWLY discharged.

4. The cartridge is retrieved and immediately placed in a bucket of water. The remains of the cartridge should be disposed of safely.

5. The gun must be thoroughly cleaned after which the crew may be dismissed.

- If a $CO_2$ Fire Extinguisher is not available, or if it is unsuccessful, the following procedure may be followed.

1. After flooding the vent, the quoin is removed or elevating screw is adjusted to bring the muzzle to full elevation.

2. The flooding device, a 3 ft. length of hose with an attached funnel, is inserted into the bore. A bucket of water is slowly emptied into the funnel.

3. The water is allowed to sit in the bore for at least 30 minutes. During this time the Gunners stay with the cannon to keep the area secure.

4. The wad hook or worm is gently introduced into the bore, hooked into the charge and it is withdrawn. It should then be placed in a bucket of water. The remains of the cartridge should be disposed of safely.

5. The gun should be thoroughly cleaned and the crew may be dismissed.

Level Two (LIVE): **A $CO_2$ extinguisher is required to be onsite for all live fire artillery demonstrations.**

Three attempts have failed to fire the cannon. Do not reprime. Once again, the Gunners remain in position while the visitors are dismissed. The following procedures must be followed.

1. DO NOT, UNDER ANY CIRCUMSTANCES, RAISE THE CANNON'S MUZZLE ELEVATION WHEN CLEARING A LIVE MISFIRE.

2. Several bulbs of water are slowly squeezed into the vent using a "turkey baster" or a marinade injector. This should be done from a position in front of the axletree to the left of the barrel, however, on smaller guns may be done from a position opposite the breech, but from outside of the wheel.

3. The vent adapter nozzle of the $CO_2$ Fire Extinguisher is inserted in the vent of the cannon barrel. The operator should be wearing the welding gloves

4. Holding the adapter nozzle securely in the vent, the $CO_2$ Fire Extinguisher is SLOWLY discharged.

5. The projectile and powder cartridge is retrieved and immediately placed in a bucket of water. The remains of the cartridge should be disposed of safely. The projectile can be saved and reused at a later demonstration.

6. The gun must be thoroughly cleaned after which the crew may be dismissed.

# Artillery Misfire Drill
## For Cannons Using Friction Primers

Level One:

When the "Fire" command is given, the friction primer fails to discharge, or discharges but the gun does not fire. All Cannoneers remain at the "Ready" position. Uneasiness and indecision will quickly transmit itself to an audience. The following procedures must be followed.

1. Wait at least 30 seconds after the primer ignites. If the Gunner feels it is necessary, the wait may be longer. In the meantime, buy some time with interpretation.

2. After waiting, the Gunner commands "Reprime the Piece." #2 steps inside the wheel, back to the muzzle, and positions himself near the axletree. #2 removes and discards the spent primer.

3. #3 hands the priming wire to #2 while standing outside the right wheel at its highest point. #3 should hold the priming wire in his right hand, palm down with the point towards #2, while #2 should take the wire with his left hand, palm up.

4. #2 picks the cartridge. While doing this #2 must make sure his fingers and hands are not on top of the ring of the priming wire, and that his fingers do not pass through the ring.

5. With his palm up, #2 hands the priming wire back to #3, who receives the wire with his palm down and returns to the "Ready" position.

6. #4 hands #2 a prepared primer over the left wheel at its highest point. #2 inserts the primer in the vent and holds the lanyard while #4 moves into position.

7. When in position, #4 will nod his head to indicate he is ready. #2 will release the lanyard and move outside the wheel to the "Ready" position.

8. When #2 is clear he gives the "Ready" command. The Gunner checks to be sure that both the gun and detachment are in order for firing, then gives the "Fire" command, and #4 fires the cannon.

9. If the gun does not fire, the above procedure should be repeated.

10. If the cannon fails to fire after three attempts move to the procedure for Level II misfires.

Level Two:

Three attempts have failed to fire the cannon. Do not reprime. Once again, the Cannoneers remain in position while the visitors are dismissed. The following procedures must be followed. You should still wait the three minutes after the last wisp of smoke is seen.

1. Several bulbs of water are slowly squeezed into the vent using a "turkey baster." This should be done from a position in front of the axletree to the left of the barrel.

2. The vent adapter nozzle of the $CO_2$ Fire Extinguisher is inserted in the vent of the cannon barrel. The operator should be wearing the welding gloves

3. Holding the adapter nozzle securely in the vent, the $CO_2$ Fire Extinguisher is SLOWLY discharged.

4. The cartridge is retrieved and immediately placed in a bucket of water. The remains of the cartridge should be disposed of safely.

5. The gun must be thoroughly cleaned after which the detachment may be dismissed.

- If a $CO_2$ Fire Extinguisher is not available, or if it is unsuccessful, the following procedure may be followed.

1. After flooding the vent, the elevating screw is adjusted to bring the muzzle to full elevation.

2. The flooding device, a 3 ft. length of hose with an attached funnel, is inserted into the bore. A bucket of water is slowly emptied into the funnel.

3. The water is allowed to sit in the bore for at least 30 minutes. During this time the gun detachment stays with the cannon to keep the area secure.

4. The wad hook or worm is gently introduced into the bore, hooked into the charge and it is withdrawn. It should then be placed in a bucket of water. The remains of the cartridge should be disposed of safely.

5. The gun should be thoroughly cleaned after which the detachment may be dismissed.

Level Two (LIVE): **A $CO_2$ extinguisher is required to be onsite for all live fire artillery demonstrations.**

Three attempts have failed to fire the cannon. Do not reprime. Once again, the Gunners remain in position while the visitors are dismissed. The following procedures must be followed.

1. DO NOT, UNDER ANY CIRCUMSTANCES, RAISE THE CANNON'S MUZZLE ELEVATION WHEN CLEARING A LIVE MISFIRE. In fact, I'm thinking that it might be good to actually depress the muzzle slightly, without aiming into the ground, to allow gravity to assist with this operation. I've only used the CO2 extinguisher with blank rounds and a projectile will make it harder to eject the round. I'd suggest that someone try this with a dummy round and projectile to be sure that it works.

2. Several bulbs of water are slowly squeezed into the vent using a "turkey baster" or a marinade injector. This should be done from a position in front of the axletree to the left of the barrel, however, on smaller guns may be done from a position opposite the breech, but from outside of the wheel.

3. The vent adapter nozzle of the $CO_2$ Fire Extinguisher is inserted in the vent of the cannon barrel. The operator should be wearing the welders gloves

4. Holding the adapter nozzle securely in the vent, the $CO_2$ Fire Extinguisher is SLOWLY discharged.

5. The projectile and powder cartridge is retrieved and immediately placed in a bucket of water. The remains of the cartridge should be disposed of safely. The projectile can be saved and reused at a later demonstration.

6. The gun must be thoroughly cleaned after which the crew may be dismissed.

# Black Powder Storage, Handling, and Transportation by MPS Staff

I. Introduction

Several MPS units have the necessity to store black powder, as well as manufacture cartridges. The following standards apply to all situations in which parks purchase, store, and handle black powder for interpretive demonstrations.

II. General Provisions

A. Storage, handling, and transportation must comply with all current applicable provisions of Federal and State safety codes and standards.

B. Where there are not more restrictive regulations, storage, handling, and transportation will comply with Occupational Safety and Health Administration (OSHA) Standard 1910.109. This standard is available online at:

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9755

C. Transportation of black powder by service personnel or in service vehicles outside of park boundaries is subject to OSHA 1910.109. Because the requirements are complex, transportation should be avoided whenever possible. Direct delivery is preferable when acquiring powder from a distributor.

D. A responsible employee must perform regular openings and inspections of magazines to ensure that there have been no unauthorized attempts at entry or removal of materials. The date of these inspections along with the amounts and types of black powder on hand must be recorded. Likewise, when powder is added or removed from the magazine, the date and types of powder must be recorded. The black powder stock should be kept as small as program demand allows, and in no case shall black powder be stored more than two years. Containers should be dated and oldest powder used first.

E. Ammunition loading areas will be in an uninhabited building in compliance with OSHA 1910.109. The loading area will provide a non-sparking worktable or bench, adequate spark-free lighting, non-sparking floor surface, and entrance control by the person handling the black powder. The loading area should be cleaned frequently with water to prevent the accumulation of black powder dust.

F. A spark-proof pass box will be used to transfer black powder from a magazine to an ammunition loading area. While loading cartridges, exposed powder should be kept to a minimum and not exceed one pound or enough for one artillery round if that is in excess of one pound. Additional powder must be kept in the pass box. As cartridges are completed they will be placed in a pass box dedicated to that purpose.

G. When ammunition is conveyed from a magazine or loading area it must be contained in a spark-proof pass box. If necessary, ammunition should be transferred from the pass box to suitable historical containers for demonstration purposes. Unused ammunition should likewise be contained in a pass box when returned to a magazine.

H. If warranted by the requirements of an interpretive program or demonstration, volunteers or reenactors may bring bulk powder onto MPS lands as long as it is pre-arranged with the park's Safety Officer and the powder is stored in the park's magazine as defined by OSHA 1910.109

# HISTORIC WEAPONS RANGE REPORT

_____
(LOCATION)

**LEAD SAFETY OFFICER:** _____

**SAFETY TALK GIVEN BY:** _____

**DATE/TIME:** _____

**RANGE CONDITIONS:**

**Weather:** _____ **Temperature:**_____

**ARTILLERY PIECES FIRED:**

_____

**CREW/DETACHMENT MEMBERS:**

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

(LIST ADDITIONAL PIECES AND MEMBERS ON NEXT PAGE)

**INCIDENTS:**

_____

_____

_____

_____

**NOTES:**